Shallow-Water Mine Countermeasure Capability for USMC Ground Reconnaissance Assets

EWS 2004

Subject Area Warfighting

Shallow-Water Mine Countermeasure Capability for USMC Ground Reconnaissance Assets

EWS Contemporary Issues Paper
Submitted by Captain D. A. Schulz
to
Major Roscoe / Major Simpers, CG 4
February 2004

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
2004		**00-00-2004 to 00-00-2004**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Shallow-Water Mine Countermeasure Capability for USMC Ground Reconnaissance Assets	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Marine Corps War College,Marine Corps University,Marine Corps Combat Development Command,Quantico,VA,22134-5067**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**10**	

"Shallow-water mine countermeasures today are not much more advanced than what the Army and Navy engineers had at Omaha Beach in 1944"[1]

As the Marine Corps looks to the future with its concept of expeditionary maneuver warfare (EMW), shallow-water mines remain a "show-stopper" to the Corps' forcible entry requirement. With limited Naval assets available, MAGTF commanders are still dependent on Marine ground reconnaissance assets for amphibious reconnaissance of potential beach landing sites -- to include the detection of shallow-water mines. However, while the shallow-water mine threat has grown exponentially in number and complexity since WWII, the Marine Corps' mine countermeasure (MCM) capability has not. In fact, reconnaissances Marines are no longer trained or equipped to detect, mark, or clear shallow-water mines. Marine Corps ground reconnaissance assets must develop a shallow-water mine countermeasure capability in order to support the forcible entry requirement of expeditionary maneuver warfare.

History

The Marine Corps first became involved with the shallow-water mine countermeasure (MCM) fight with its WWII raider battalions -- the predecessors of today's reconnaissance units. "The famous USN Underwater Demolition team had its beginning in the summer of 1943. Personnel for this first team came from

Navy Construction Battalions, Navy/Marine Corps Scout and Raider volunteers, and the Office of Strategic Services."[2] These units were specifically designed to locate and clear mines and other obstacles from landing beaches. However, the end of WWII brought the disbanding of the raider battalions and the end of the Marine Corps' participation in MCM warfare. Years later, with the rebirth of reconnaissance in the Marine Corps, the requirement for amphibious reconnaissance returned but not the MCM capability.

USMC Ground Reconnaissance Mission Requirements

Marine Corps ground reconnaissance assets are comprised of force reconnaissance companies and reconnaissance battalions. Although the missions and capabilities of these two types of reconnaissance units vary, they are both required by mission statement and mission essential task list "to conduct amphibious reconnaissance...."[3] This requirement has remained consistent throughout the years due to the nature of an amphibious force, which must come "from the sea"[4], across the beach, and to the objective. As the Corps looks to the future, the requirements of EMW, coupled with the growing shallow-water mine threat, place even greater demands and importance on amphibious reconnaissance.

EMW / Forcible Entry Requirements

Forcible entry -- the capability to project and sustain power ashore in the face of armed opposition -- is a core competency requirement of EMW.[5] In turn, the ability to conduct MCM is a crucial requirement for a forcible entry capability across the beach. Of particular concern to the Marine Corps is the mine threat in the shallow-waters (less than 40 feet deep), to include the surf zone. Currently, the greatest MCM challenge and subsequent threat to a forcible entry capability is the Corps' "inability to find and destroy mines in shallow waters."[6]

The Shallow-Water Mine Threat

The shallow-water mine threat has grown exponentially since WWII. The U.S. Navy estimates that "approximately 50 nations possess sea mines -- a 40% increase since 1986"[7] alone. Mines are relatively cheap and have become the weapon of choice to protect the coastlines of many third world countries. Along with the increasing number, shallow-water mines have also become far more technologically advanced than their predecessors. "Now mines are made with plastic, wood, and various composite materials. They are becoming 'smarter,' meaning they look for electromagnetic and acoustic signatures from approaching vessels."[8] All of these factors significantly change the "face" of amphibious reconnaissance. Today's recon Marine must be

prepared to conduct reconnaissance of beaches and beach approaches likely littered with shallow-water mines. The complexity and lethality of this threat requires a highly trained and capable amphibious reconnaissance force.

USMC Ground Reconnaissance MCM Capabilities

The reconnaissance Marine receives extensive training in the conduct of amphibious reconnaissance. The Basic Reconnaissance Course devotes four weeks to teaching the swimming, boating, collection, and reporting aspects of amphibious reconnaissance. Marine Combat Dive School spends another nine weeks training a reconnaissance Marine to insert/extract clandestinely from a beach landing site via underwater breathing apparatus. Overall, a reconnaissance Marine will spend approximately one year in school just to become basically qualified to do his job. However, a fully qualified reconnaissance Marine currently receives almost no demolitions training and zero training in the detection, marking, and clearing of water mines. In addition, Marine ground reconnaissance units are not equipped to swim into an area that may be mined because they do not possess the proper gear -- nonmagnetic dive gear (to prevent self-detonation of magnetic mines) and hand-held sonar (to locate mines). In short, the Marine Corps does not possess an organic shallow-

water mine countermeasure capability. The only existing shallow-water MCM capability in the Department of Defense arsenal is the U.S. Navy's Very Shallow Water Detachment (VSW).

USN VSW Capability

The U.S. Navy's VSW detachment is made up of Navy SEALs, Navy Explosive Ordnance Disposal personnel, and reconnaissance Marines. It is organized into a headquarters element, combat diver platoon, mammal platoon (dolphins), and an unmanned subsurface vehicle platoon (remotely piloted vehicles). VSW was established as a test unit in 1986 and has proven quite capable on a limited basis since that time. In fact, VSW's dolphins were used successfully during Operation Iraqi Freedom to locate and mark mines in various Iraqi ports. However, the logistical footprint and small size of the unit severely limit its utility, availability, and responsiveness to the needs of the MAGTF commander. These limitations coupled with the realities of the growing shallow-water mine threat have caused the Marine Corps and Navy to pursue technology for an answer to the MCM fight.

MCM Technology

The ultimate goal of the U.S. Navy and Marine Corps is to remove man and mammals from the shallow-water MCM fight and replace them with munitions and machines. The two most

promising of these technologies, the distributed explosive technology (DET) and the shallow-water assault breaching system (SABRE), were both forms of line charges designed to breach and clear mines in the surf zone. After seven years of development, both the DET and SABRE were abandoned in 2001 because they "were considered ineffective and too costly."[9] The naval services continue to pour research dollars into MCM technology; however, there appears to be no solution on the horizon -- none within the next 10 to 15 years. "The tests so far have demonstrated that divers are superior to any current hardware system in discriminating between mines and nonmines. Even in zero visibility, divers in most cases can positively identify the mine and collect other valuable tactical information...."[10] The U.S. Navy and Marine Corps must continue to fund research and look to technology to ultimately win the MCM fight in the future. However, the shallow-water mine threat is a current problem that requires an immediate fix. The employment of reconnaissance Marines in the MCM fight is the most viable short-term answer for the Marine Corps.

Recommendation

The MAGTF commander must be provided an organic, limited MCM capability. This can be accomplished by training and equipping reconnaissance Marines to operate in a shallow-water

mine threat environment. At a minimum, this requires training in shallow-water mine detection, to include hand-held sonar, and specialized non-magnetic dive equipment. This would allow Marines to conduct amphibious reconnaissance in potentially mined areas, determine if a mine threat exists, and look for gaps in the enemy's shallow-water defenses. Time and resource permitting, advanced MCM training could be added to give reconnaissance Marines a limited capability to detonate and clear shallow-water mines and other obstacles.

Conclusion

"The Navy and Marine Corps are nowhere close to having suitable equipment to detect and breach minefields in shallow water, close to the beach."[11] VSW is extremely capable but very limited. Although researchers strive to find a technological answer to the shallow-water mine threat, man currently remains the most viable option. As long as Marines are conducting operations "from the sea"[12], the MAGTF commander will require amphibious reconnaissance from his reconnaissance Marines. These Marines will face shallow-water mines and must be trained and equipped to operate in this environment. Without this capability, forcible entry across the beach will not be possible and expeditionary maneuver warfare will remain just a concept and never become a reality.

BIBLIOGRAPHY

2d Force Reconnaissance Company, Staff. "2d Force Reconnaissance Company at War." *Marine Corps Gazette*, July 2003, 32-35.

Copp, Adam J., LtCol, USMC, and Veeris, Christian, Maj, USMC. "Back to the Basics." *Marine Corps Gazette*, July 2003, 29-31.

Erwin, Sandra. "Shallow-water mines remain 'Achilles' heel' of U.S. Navy." *National Defense*, Jan 2002, Vol. 86, Iss. 578, 16-17.

Kyser, Giles, LtCol, USMC. "Fix Recon, USSOCom, and the Future of the Corps: Food for Thought." *Marine Corps Gazette*, July 2003, 16-21.

Llantero, F.F., Capt, USMC. "Inadequate Mine Countermeasure Systems and Capabilities for Future Amphibious Operations." EWS Contemporary Issue Paper, 2002.

Rowe, A.B., Capt, USMC. "Marine Corps Participation in Very Shallow Water Mine Warfare." EWS Contemporary Issue Paper, 2003.

Somers, Lee H., PH.D. *History of Diving: Selected Events,* http://www.umich.edu/~oseh/history.pdf> (10 Jan 04).

Truver, Scott C., and Nagle, Richard. "Foundering on rocks, shoals & mines." *United States Naval Institute, Proceedings*, Aug 1997, Vol. 123, Iss. 8, 50-57.

U.S. Department of the Navy, Headquarters Marine Corps. *Expeditionary Maneuver Warfare: Marine Corps Capstone Concept*, 2002.

U.S. Department of the Navy, Headquarters Marine Corps. *Fix Recon Initiative - Mission Statement/TO/TE Review.* Oct 2002.

U.S. Department of the Navy, Headquarters Marine Corps. *Marine Corps Strategy 21*, Nov 2000.

U.S. Department of the Navy, Headquarters Marine Corps. "Operational Maneuver From the Sea: A Concept for the Projection of Naval Power Ashore." *Maritime Prepositioning Force 2010 and Beyond*, 2002.

U.S. Department of the Navy, Headquarters Marine Corps. *Ship-to-Objective Maneuver Concept of Operations*, 2001.

U.S. Department of the Navy, Headquarters Marine Corps, Training and Education Command. *Marine Combatant Dive* School, http://www.reconmarines.com/html/diver.html> (10 Jan 04).

U.S. Department of the Navy, Program Guide to the U.S. Navy, *Vision, Presence, Power*, 2003 (Washington D.C.), 80-97.

ENDNOTES

[1] Sandra Erwin, "Shallow-water mines remain 'Achilles' heel' of U.S. Navy." *National Defense*, Jan 2002, Vol. 86, Iss. 578, 16.

[2] Lee H. Somers, PH.D, *History of Diving: Selected Events,* http://www.umich.edu/~oseh/history.pdf> (10 Jan 04)

[3] U.S. Department of the Navy, Headquarters Marine Corps. *Fix Recon Initiative - Mission Statement/TO/TE Review. Oct 2002*

[4] U.S. Department of the Navy, Headquarters Marine Corps. "Operational Maneuver From the Sea: A Concept for the Projection of Naval Power Ashore." *Maritime Prepositioning Force 2010 and Beyond*, 2002.

[5] U.S. Department of the Navy, Headquarters Marine Corps. *Marine Corps Strategy 21*, Nov 2000.

[6] Erwin, 16.

[7] Erwin, 16.

[8] Erwin, 17.

[9] Erwin, 16.

[10] Scott C. Truver and Richard Nagle, "Foundering on rocks, shoals & mines." *United States Naval Institute, Proceedings*, Aug 1997, Vol. 123, Iss. 8, 55.

[11] Erwin, 16.

[12] U.S. Department of the Navy, Headquarters Marine Corps. "Operational Maneuver From the Sea: A Concept for the Projection of Naval Power Ashore." *Maritime Prepositioning Force 2010 and Beyond*, 2002.